

## CLAIMS

1. An acellular immunogenic composition capable of inducing an immune response against *B. anthracis* infections, characterized in that it comprises:
  - a protective antigen (PA),
  - killed, optionally purified, spores obtained either from mutant strains of *B. anthracis* carrying one or more mutations chosen from mutations in at least one gene encoding a protein responsible for a toxic effect, in *B. anthracis*, or from mutant strains of *B. anthracis* lacking at least one of the pX01 and pX02 plasmids,combined at least with a pharmaceutically acceptable vehicle.
2. The acellular immunogenic composition as claimed in claim 1, characterized in that it is capable of producing antibodies against *B. anthracis*.
3. An acellular vaccine composition against *B. anthracis*, characterized in that it comprises:
  - a protective antigen (PA),
  - killed, optionally purified, spores obtained either from mutant strains of *B. anthracis* carrying one or more mutations chosen from mutations in at least one gene encoding a protein responsible for a toxic effect, in *B. anthracis*, or from mutant strains of *B. anthracis* lacking at least one of the pX01 and pX02 plasmids,combined at least with a pharmaceutically acceptable vehicle and with at least one adjuvant.
4. The immunogenic composition as claimed in either of claims 1 and 2, or the vaccine composition as claimed in claim 3, characterized in that it also

comprises at least one detoxified exotoxin chosen from the group consisting of the lethal factor (LF) and the edematogenic factor (EF), which have been detoxified.

5

5. The immunogenic composition as claimed in either of claims 1 and 2, or the vaccine composition as claimed in claim 3, characterized in that the spores are derived from a strain of *B. anthracis* chosen from the group consisting of the following strains: Sterne 7702, RPLC2 (Collection Nationale de Cultures et de Microorganismes [National Collection of Cultures and of Microorganisms] held by the Institut Pasteur under the number I-2270, dated July 28, 1999) and RP42 (Collection Nationale de Cultures et de Microorganismes held by the Institut Pasteur under the number I-2271, dated July 28, 1999).

20

✓

6. The immunogenic composition or vaccine composition as claimed in any one of claims 1 to 5, characterized in that the protective antigen is chosen from the group consisting of the purified protective antigens derived from any wild-type or mutated Sterne strain of *B. anthracis*, and the recombinant protective antigens.

25

7. The immunogenic composition or vaccine composition as claimed in claim 6, characterized in that the protective antigen is derived from the RP42 strain (Collection Nationale de Cultures et de Microorganismes [National Collection of Cultures and of Microorganisms] held by the Institut Pasteur under the number I-2271, dated July 28, 1999).

30

35

8. The RPLC2 strain deposited with the Collection Nationale de Cultures et de Microorganismes

✓

[National Collection of Cultures and of Microorganisms] held at the Institut Pasteur under the number I-2270, dated July 28, 1999.

- 15 9. The use of at least one antibody directed against the spores derived from strains obtained either from mutant strains of *B. anthracis* carrying one or more mutations chosen from mutations in at least one gene encoding a protein responsible for a toxic effect, in *B. anthracis*, or from mutant strains of *B. anthracis* lacking at least one of the pX01 and pX02 plasmids, for producing a medicinal product capable of inducing passive immunization.

15

- 14 10. A purified antigenic preparation, characterized in that it is derived from *B. anthracis* spores and comprises one or more of the exoantigens of respective molecular weights 15 kDA, 30 kDA, 55 kDA, and greater than 200 kDA.

20

- 14 11. An antibody directed against the antigenic preparations as claimed in claim 10.